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REUSEABLE YIELDING ASSEMBLY

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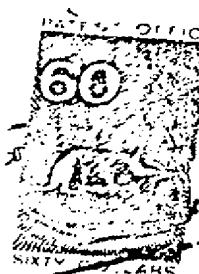
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(56) Prior Art Documents
AU 46315/79 E01F 9/01
AU 38501/78 E01F 9/00
WO 02167/80

(57) Claim

1. A yieldable mounting for a normally, substantially vertical post, said mounting comprising a fixed base plate, a support plate attachable to the lower end of said post, hinge means pivotally connecting said base plate and said support plate at first adjacent edges thereof and shear means interconnecting said base plate and said support plate at second adjacent edges opposed to said first adjacent edges whereby when said post is subjected to a horizontal impact said shear means shears thereby allowing said post to pivot from its normally substantially vertical position to a substantially horizontal position without damage to said post.

603003



APPLICATION FOR A STANDARD PATENT OR A STANDARD PATENT OF ADDITION

PERSON: WINSTON MURRAY
ADDRESS: RIVERSIDE DR PALM BEACH QLD 4221

(161) hereby apply for the grant of a standard patent patent of addition for an invention entitled

RE-USABLE YIELDING ASSEMBLY

which is described in the accompanying provisional complete specification.

(Check appropriate box)

Insert name of
actual inventor

(172) The actual inventor(s) of the said invention is/are G.W. MACDONALD

Insert address
for service, etc.
notices, etc.
Australia

My usual address for service is P.O. Box 75 Palm Beach QLD 4221

Attorney Code.....

THESE SECTIONS ARE ONLY TO BE COMPLETED WHERE APPLICABLE:

(ONLY TO BE USED IN THE CASE OF A CONVENTION APPLICATION)

Details of basic application(s) —

(31) Number of basic application

(33) Name of Convention country in which basic application was filed ISO Code

(32) Date of basic application

For Divisional
Applications only

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(32) Number of original application

Person by whom made

For Patents of
Addition Only

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I request that the patent may be granted as a patent of addition to the patent applied for on

(61) Application No. Patent No.

in the name of

I request that the term of the patent of addition be the same as that for the main invention or so much of the term of the patent for the main invention as is unexpired.

Insert day, month
and year form
signed

Dated this day of

SEPTEMBER 1987
3RD

OCTOBER 1987 19
SEPTMBER 1987
J.W. Macdonald
(Signature)

Signature of
applicant or
Australian
attorney

APPLICATION ACCEPTED AND AMENDMENTS

TO ALLIED 9-8-90

THE COMMISSIONER OF PATENTS

This form must be accompanied by either a provisional specification (Form 9 and true copy) or by a complete specification (Form 10 and true copy).

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G.R. CULLEN & CO.

COMMONWEALTH OF AUSTRALIA

PATENTS ACT 1952

DECLARATION IN SUPPORT OF AN
APPLICATION FOR PATENT

In support of the application made by GORDON WINSTON MACDONALD,
for a patent for an invention entitled

REUSEABLE YIELDING ASSEMBLY

I, GORDON WINSTON MACDONALD, of 8 Riverside Drive, Palm Beach,
Queensland, do solemnly and sincerely declare as follows:-

1. I am the applicant for the patent.
2. I am the actual inventor of the invention.

G.W.M. DECLARED at ~~Hurricane~~ this 30th day of August 1988.
G.W.M.
.....
Signature of Declarant

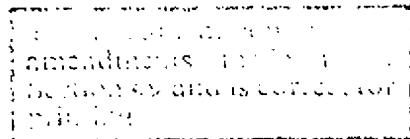
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The Patents Act 1952-1969

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COMPLETE SPECIFICATION FOR THE INVENTION ENTITLED:

REUSEABLE YIELDING ASSEMBLY

The following statement is a full description of the invention including the best method of performing it known to me.

The invention relates to a yieldable mounting and a post assembly including such a mounting.

5 The invention will be described by way of example with reference to sign posts but it should be understood that this is by way of example only and that the invention may be used for other purposes also.

10 Sign posts are typically mounted in locations where they are readily seen and hence vulnerable to damage by vehicles. Such posts are usually anchored to the ground by a short sleeve which is mounted into the ground and adapted to receive a lower end of a post. A bolt was positioned to extend through both the sleeve and the lower end to hold them together. Mountings of this type were prone to extensive 15 damage if the post was struck by a vehicle. If the post was hit by a vehicle extensive damage usually occurred not only to the post but also to the sleeve. As the sleeve was usually cemented into the ground, it was necessary to excavate around the sleeve to remove a damaged sleeve and position and cement a new sleeve before a replacement post 20 could be fitted.

An attempt at alleviating the disadvantages of these types of 25 mountings involved using a flexible or articulated coupling between the post and the mounting. These mountings

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functioned such that when the post was struck by a vehicle it would yield, fold over and spring back to its original position after the vehicle had passed or withdrawn. These mountings were expensive and unsuitable in areas of high prevailing winds. The large area presented by a sign mounted to the post acted as a sail and the post tended to be buffeted by the wind.

It is an object of the present invention to provide a yieldable mounting and a post including such a mounting which at least minimises the disadvantages referred to above.

According to one aspect, the invention provides a yieldable mounting for a normally, substantially vertical post, said mounting comprising a fixed base plate, a support plate attachable to the lower end of said post, hinge means pivotally connecting said base plate and said support plate at first adjacent edges thereof and shear means interconnecting said base plate and said support plate at second adjacent edges opposed to said first adjacent edges whereby when said post is subjected to a horizontal impact said shear means shears thereby allowing said post to pivot from its normally substantially vertical position to a substantially horizontal position without damage to said post.



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According to another aspect, the invention provides a post assembly, including a yieldable mounting according to the invention and having a mounting member projecting from the base plate and, in use, projecting into the ground with a post projecting from the support plate and, in use, extending generally upright.

The shear means may be a shear pin for holding the plates against relative pivotal movement. The shear pin preferably passes into or through apertures in the plates. Alternatively, the shear pin may be formed integral with one of the plates and locate in or through an aperture in the other plate. The shear pin may extend parallel or perpendicular to the plates.



Preferably the shear pin is threaded at one end and takes the form of a bolt. The bolt may be made from mild steel of a suitable gauge and either threaded into one of the plates or held thereto by a nut.

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The post extending from the support plate may be solid or tubular in transverse cross section. The post may be adapted to carry a sign at its distal end. The post may be formed integral with or secured to the support plate. Preferably, the post is welded to the support plate.

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The mounting member may also be a post either solid or hollow in transverse cross section. That post may be integral with the base plate or secured thereto. Preferably the post is welded to the base plate.

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A particular preferred embodiment of the invention will now be described with reference to the drawings in which:
Figure 1 is an exploded perspective view of a post assembly according to an embodiment of the invention;
20 Figure 2 is a longitudinal sectional view of the assembly of Figure 1 shown in situ; and,
Figure 3 and 4 are detailed perspective views useful in understanding the operation of the yieldable mounting of an
embodiment of the invention.

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Figure 1 shows a yieldable mounting consisting of a support plate 10 and a base plate 11. The mounting has a hinge pin 12 and a shear pin 13. The mounting is shown as part of a post assembly having a post 14 and a mounting member 15.

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Post 14 is welded to support plate 10 and is hollow in transverse cross section. The distal end of the post 14 may carry a sign (not shown). Hinge pin 12 is L shaped and has a first portion 16 welded to an edge of plate 10 and a second portion 17 extending along and spaced from edge 18 of plate 10. Plate 10 has an apertured enlargement 20 at an edge opposed to edge 18. The enlargement may be formed by folding or rolling an edge of the plate 10 over onto itself. Enlargement 20 does not extend the full width of the plate 10.

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Post 14, in use, extends substantially vertically although it may extend at any other angle relative to plate 10.

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Plate 11 has mounting member 15 extending downwardly therefrom. Member 15 may be tubular and be of a transverse size to enable it to be received in or over a short sleeve cemented or otherwise fixed into the ground. A frictional fit is typical. Alternatively, member 15 may itself be cemented or fixed into the ground where a short sleeve is not present.

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Plate 11 has an apertured enlargement 22 for receiving hinge pin portion 17. The enlargement 22 may be formed in a like manner to the way in which enlargement 20 is formed. At an edge opposed to enlargement 22 a further apertured enlargement 23 is formed and this may also be in a like manner to that of enlargements 20 and 22. Enlargement 23 does not extend the full length of the edge of the plate 11. When the plates 10, 11 are connected to one another portions 20 and 23 together extend substantially along the full length of one edge of the plates.

Figure 2 shows the post assembly of Figure 1 in its assembled form. The mounting member 15 is shown embedded in cement. The arrow A shows the direction in which the post 14 may be struck in order to shear the pin 13. If struck in this direction the post 14 is caused to pivot relative to plate as shown in figure 4. The direction in which a strike will cause shearing of the pin is more clearly shown in figure 3.

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With the assembly of the invention, if the post 14 is struck by a vehicle, the post is not damaged and neither is the mounting plate or mounting member. The post may simply be repositioned in the desired position and a fresh shear pin 13 located to hold the two plates against pivotal movement.

It should be appreciated that by proper choice of material and gauge for the hinge pin 12 or by adopting a weld of a desired strength it is possible to have the assembly function adequately should the post 14 be struck in a direction opposite to that of arrow A. For example hinge pin 12 may shear or break free of plate 10 under those circumstances and in which case the shear pin 13 may enable pivotal movement of the plate 10 relative to plate 11. If this occurs disassembly of the parts is then necessary and once a new hinge pin is fitted, the assembly may be restored for further use.

The claims defining the invention are as follows:

1. A yieldable mounting for a normally, substantially vertical post, said mounting comprising a fixed base plate, a support plate attachable to the lower end of said post, hinge means pivotally connecting said base plate and said support plate at first adjacent edges thereof and shear means interconnecting said base plate and said support plate at second adjacent edges opposed to said first adjacent edges whereby when said post is subjected to a horizontal impact said shear means shears thereby allowing said post to pivot from its normally substantially vertical position to a substantially horizontal position without damage to said post.
2. The mounting of claim 1 wherein said shear member is either a shear pin or a screw threaded shear fastener.
3. The mounting of claims 1 or 2 wherein said shear member is received in apertures in said support plate and the base plate.
4. The mounting of claim 3 wherein said apertures which receive said shear member are provided in respective enlargements on said support plate and base plate.
5. A yieldable mounting substantially as herein described with reference to figures 1 to 4 of the drawings.
6. A post assembly including a yieldable mounting according to any one of claims 1 to 5 and having a mounting member projecting from the base plate and, in use, projecting



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into the ground with said post projecting from the support plate and, in use, extending generally upright.

7. A post assembly substantially as herein-described with reference to figures 1 to 4 of the drawings.

DATED this Eleventh day of July, 1990.

GORDON WINSTON MACDONALD

by his Patent Attorney

CULLEN & CO.



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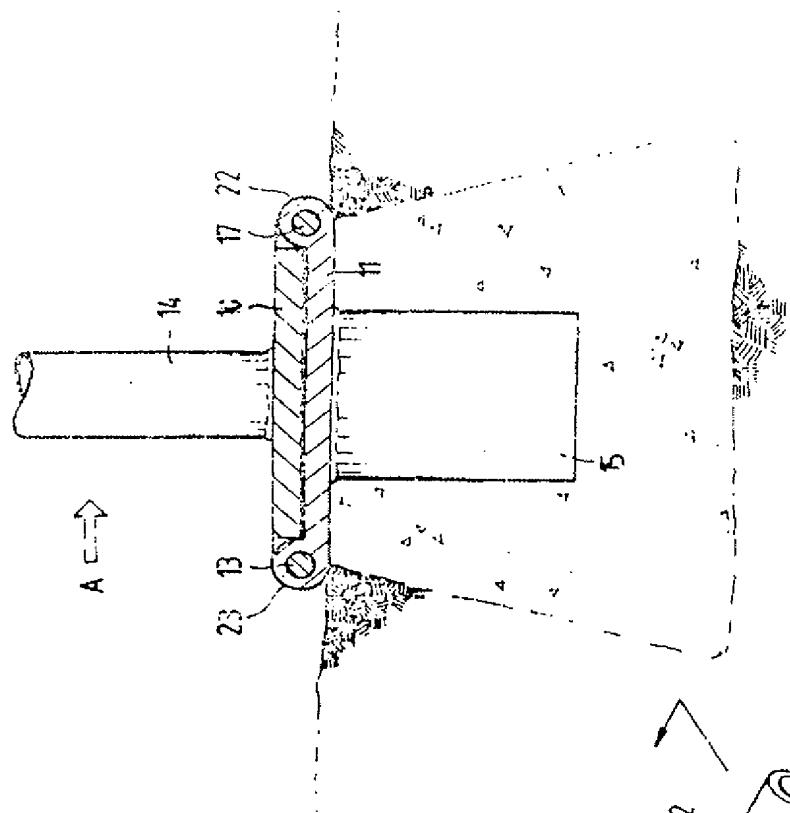


FIG. 2

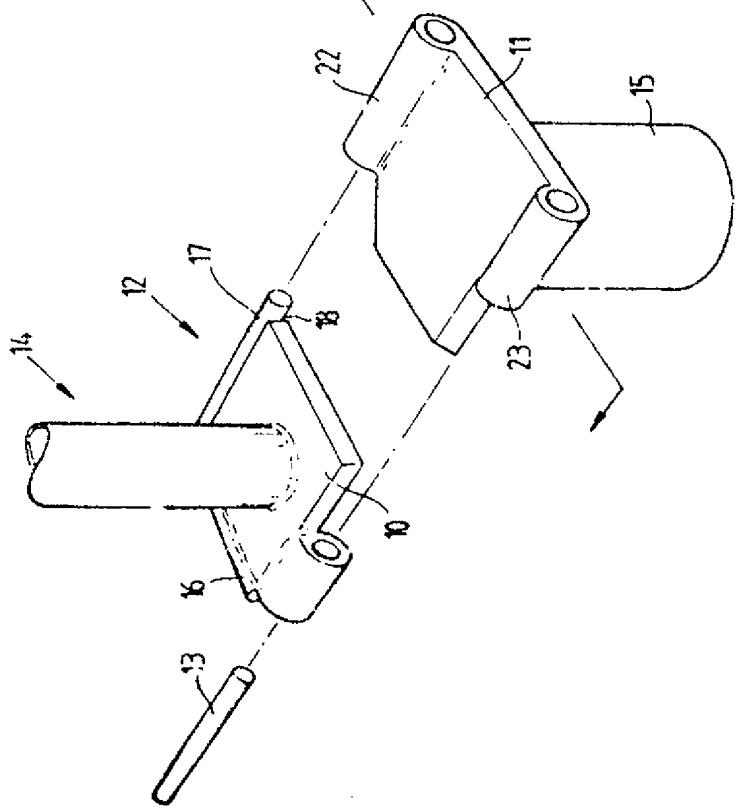


FIG. 1

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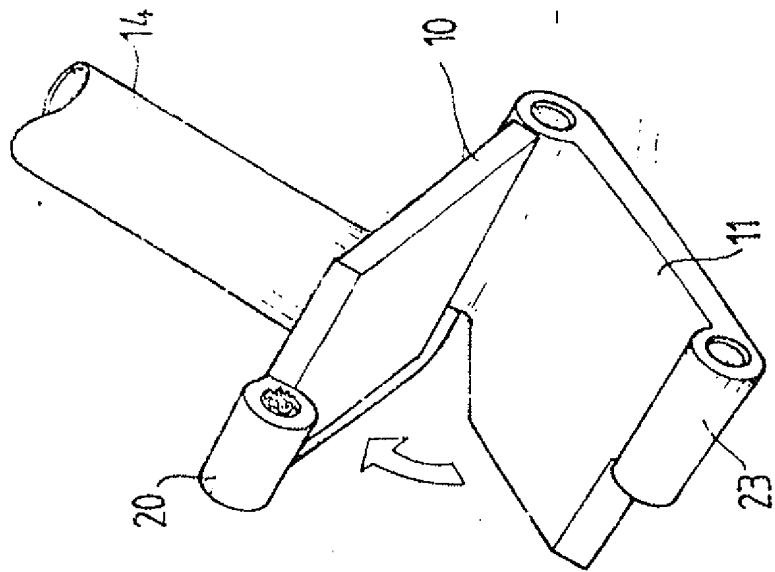


FIG. 4

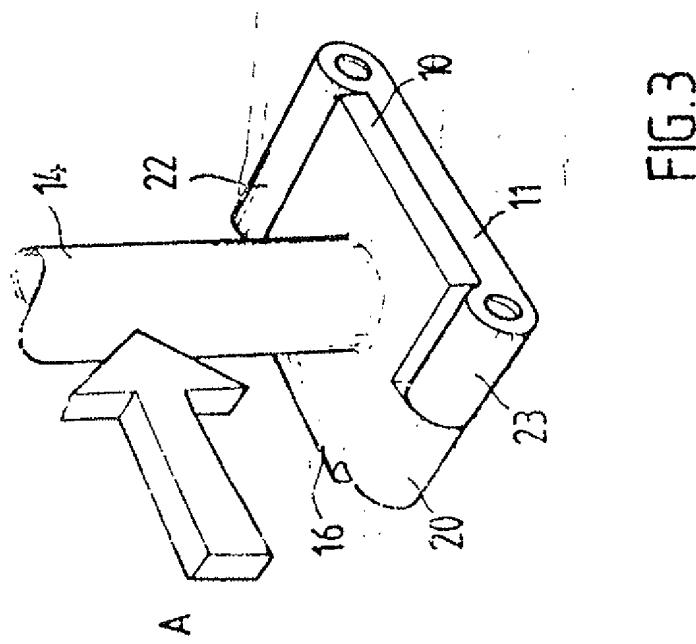


FIG. 3

